1 9626/12/F/M/17/Q6

Amisha, the Management Information System (MIS) manager has just purchased some MIS software for her company.

Explain how it can be used by Amisha to help the company run more efficiently.

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STUDENTS RESOURCE

CamScanner

9626/12/F/M/17/Q9

Theresa has created a database query which searches for the surname "Johnson". Surjit has told her that this is a static parameter query.

Explain what is meant by static parameter query and why she should change to using a dynamic parameter query.

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STUDENTS RESOURCE

CamScanner

3 **9626/12/F/M/17/Q10**

Below is an extract from a database of students who have chosen to study Maths at AS Level. The database is in unnormalised (0NF) form.

Student number	Name	Second subject	Third subject
1001	Eashan Wadhwa	Chemistry	Physics
1002	Karan Bansal	Physics	Chemistry
1003	Manan Malik	Chemistry	Biology
1004	Neel Bhatia	Biology	Chemistry
1005	Ridhima Shekhar	History	Biology
1006	Rohin Pannu	Geography	History
1007	Saransh Anand	History	Geography
1008	Shraddha Aggarwal	Biology	Chemistry
1009	Rekha Pooja	Physics	Chemistry
1010	Sundar Rakshana	Physics	Chemistry

Describe the characteristics of the data above which make it unnormalised and explain how it can be transformed into first normal form (1NF).

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STUDENTS RESOURCE

CamScanner

9626/11/M/J/17/Q5

A school secretary has just been given some student data to enter into a school's database of student records.
These include student numbers and dates of birth such as:

13542767	14/07/2000
11987643	13/10/2001

In order to ensure accuracy of the input, the data will be validated.
Possible validation checks which could be used are range checks, check digits and format checks.

Analyse the effectiveness of these checks in validating this data.

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STUDENTS RESOURCE

CamScanner

5 9626/11/M/J/17/Q10

Here is a table of data about individuals and their families which is being converted into a database.

Family_name	First_name	C	D	E	F
Gustoffsson	Gunnar	18/05/1957	M	Divorced	2
Sandhu	Jasvinder	09/08/1988	F	Single	0
Otieno	Peter	27/12/2001	M	Single	0
Qabbani	Nizar	01/01/1990	M	Married	3
Wanjeku	Jane	22/05/1994	F	Married	4
Garcia	Francesca	12/11/1986	F	Married	5
Potter	James	17/10/1992	M	Married	0

Suggest suitable field names for C, D, E and F. For each field, state an appropriate data type and give a reason for your choice. For each field, state, with a reason, the number of bytes the database would need to allocate for the data to be stored.

(i) C .....

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(ii) D .....

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(iii) E .....

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STUDENTS RESOURCE

CamScanner

(iv) F .....

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6 **9626/11/M/J/17/Q14**

Imran has developed a simple library database system which contains information about the books. Each record contains the following data:
Book title, author, ISBN, borrowed (Y/N), date borrowed, borrower number.

Design an appropriate online data entry form for one book, clearly indicating the amount of space required for each field. Your design must represent a computer screen and, where appropriate, allow the user to enter data by clicking the mouse rather than entering text.

[8]

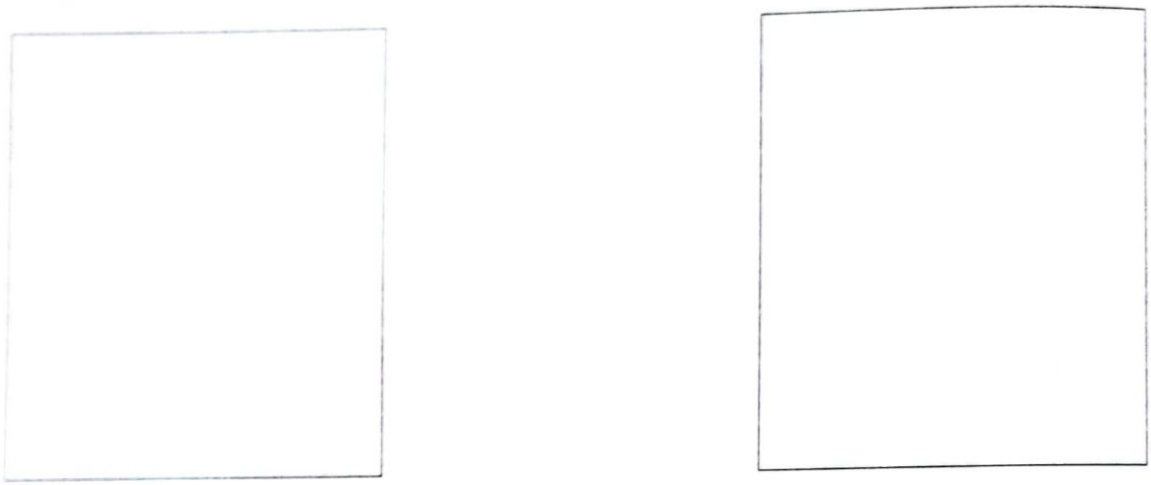
STUDENTS RESOURCE

CamScanner

7 9626/11/M/J/17/Q15

Frida has been given the task of creating a database to store all her company's customer records and sales records. She is going to produce a relational database.
The customer records will have the fields **Customer_id**, **Name**, **Contact_phone** and **Card_number**.
The sales records will have the fields **Invoice_number**, **Item_number**, **Item_description**, **Item_cost** and **Customer_ref**.

(a) Complete the diagram below to show how the tables will be combined.



[4]

(b) Describe how you would create the relational database in part **(a)**.

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STUDENTS RESOURCE

CamScanner

9626/13/M/J/17/Q1

Tick the **four** true statements referring to the use of data types when creating a database.

	✓
Boolean is a data type representing either of two states.	
Text fields cannot contain numbers.	
Numeric fields cannot contain text.	
Integer is a numeric data type used for storing decimal numbers.	
Date is a data type which can be used for storing images.	
The real number data type is used for fields containing whole numbers only.	
The numeric data type can be subdivided into different types of number.	
The alphanumeric data type can contain punctuation marks.	
The text data type is the easiest type of data to validate.	
Currency must be stored as text.	

[4]

9626/13/M/J/17/Q2

Tick the **four** true statements relating to the use of normalisation when organising the attributes and tables of a relational database.

	✓
A table that has not got a unique key can still be in first normal form.	
Normalisation does not attempt to eliminate storing the same data in more than one table.	
Normalisation involves breaking down a table into less redundant, smaller tables.	
A table is in first normal form if it contains no repeating groups.	
A table is in second normal form if it is in first normal form and, additionally, does not have a composite primary key.	
A table in first normal form must use all the relationships, one-to-one, one-to-many and many-to-one.	
A database is in third normal form if it is in second normal form and each table has no non-key attributes that depend upon other non-key attributes.	
A third normal form table can still have non-key attributes dependent on other non-key attributes.	
Third normal form tables can still have non-key fields that do not depend on the primary key.	
Every table in a relational database must have a foreign key.	

[4]

STUDENTS RESOURCE

CamScanner

10 9626/13/M/J/17/Q10

A school marks all its exams out of 100.
It has recently introduced a system of positive marking for students in years 12 and 13 whereby students will be awarded 10 marks for just sitting the exam and then, as normal, will be awarded further marks for correct answers.
After the papers have been marked, the school secretary will enter the marks into a student database together with the year the student is in and their date of birth, which must be entered in the form dd/mm/yyyy. It is acceptable for data to be omitted for certain students.

Apart from type check or length check, describe **four** different validation checks which should be carried out on the data to help prevent mistakes occurring.

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STUDENTS RESOURCE

CamScanner

9626/13/O/N/17/Q1

Tick the **four** most accurate statements about relational databases.

	✓
Duplication of data is avoided saving storage space.	
Every individual mistake in the database has to be manually corrected in all tables.	
It is easier to produce cross-tabular reports in relational databases than with flat file databases.	
The only two possible relationships are one-to-one and many-to-one.	
It is impossible to make mistakes when entering data into a relational database.	
Tables can be linked using a key field.	
There must be at least three tables in a relational database.	
Primary keys are unnecessary whereas you must have them with flat file databases.	
Relational databases cannot store as much information as flat file databases.	
Referential integrity helps to prevent database users entering inconsistent data.	

[4]

STUDENTS RESOURCE

CamScanner

12 9626/13/O/N/17/Q7

Fig. 1 below shows a small extract from a school database. All students shown are in year groups 9, 10 or 11 depending on their year of birth. Each student's year group, which is not part of the database, is shown in Fig. 2.

student_ID	student_name	option _1	option_2	year of birth
100132	Marian Griffith	Geography	Art	2001
101648	Manjit Dupay	Sociology	Design Tech	2003
103457	Ho Chan	History	Spanish	2002
104895	Johan Schmidt	Geography	Art	2002
105456	Paul Dugarry	History	German	2001
105645	Li Cho	History	Latin	2002

Fig. 1

Name	year_group
Marian Griffith	11
Manjit Dupay	9
Ho Chan	10
Johan Schmidt	10
Paul Dugarry	11
Li Cho	10

Fig. 2

The **year_group** field needs to be added to the database and will be a calculated field.

(a) Explain how you would set up the calculated **year_group** field.

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(b) You have been asked to produce a well-formatted report showing the year 10 students studying History. The report will contain a list of these students showing only each student's name, identity number and the total number of students involved.

Explain how you would produce such a report.

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STUDENTS RESOURCE

CamScanner

13 **9626/13/O/N/17/Q9**

Wilhelm has tried importing a word-processed file into his spreadsheet but the software gives the error message 'file format not valid'.

Explain why this has happened and explain what Wilhelm should do to his data to enable him to load it into his spreadsheet.

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14 **9626/13/O/N/17/Q11**

Ahmed was overheard saying 'MIS is a piece of software to store data'. Anjan, his colleague, said 'I am sure it's a little more complicated than that.'

By describing the features of a management information system (MIS), explain why Anjan was justified in his statement.

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STUDENTS RESOURCE

CamScanner

9626/12/F/M/18/Q3

Indira is the manager of a holiday booking company. She is in the process of updating the company's database of holidays. She has a file **newholidays.csv** which she wants to import to the database as a new table.

Describe the steps she needs to follow to do this.

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STUDENTS RESOURCE

CamScanner

16 9626/12/F/M/18/Q10

A clothing manufacturer uses codes to store information about its clothes. For example, a pair of blue trousers with a waist of 80 cm and a leg length of 77 cm could be coded as BT8077.

Explain what each part of the code GT8878 could mean and why there may be problems with coding other items of clothing in this way. Include in your explanation ways of improving the method.

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STUDENTS RESOURCE
CamScanner

9626/12/F/M/18/Q11

A company keeps details of their payroll data in a single computer file.

Evaluate the use of spreadsheet and database software to store this data using examples related to payroll for your argument.

[8]

STUDENTS RESOURCE

CamScanner

18 9626/12/F/M/18/Q12

Below are two tables from a college database. A relationship links the two tables.

Students

Studentid	Phone	First_name	Coursecode
F1278	111000733	Ravinder	P301
F3794	111016620	Avtar	F402
F4921	117421600	Shokat	B115
F9153	114006451	Ravinder	B115

Courses

Coursecode	Course_Title
P301	Physics
E402	English
B115	Biology
M301	Maths

(a) Explain which fields would be set for primary keys, a compound key and a foreign key, giving reasons for each choice.

[6]

STUDENTS RESOURCE

CamScanner

(b) A list is required of all the students studying Biology.

Write down the steps you would need to take to produce this list using the Students table only. You may assume the database is already open.

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STUDENTS RESOURCE

CamScanner

19 9626/11/M/J/18/Q10

Below is an excerpt from a database showing some holiday bookings.

Country	Group size	Code	Discount	Duration
Egypt	4	EGY	☑	10
Malaysia	5	MAL	☑	14
Thailand	8	THA	☐	7
Costa Rica	4	COZ	☑	10
Sri Lanka	2	SRI	☐	14
Bahamas	3	BAH	☑	21
Indonesia	4	IND	☐	14
Indonesia	4	IND	☑	10
Costa Rica	5	COZ	☑	14
Egypt	6	EGY	☑	14
Sri Lanka	4	SRI	☑	21
Egypt	8	EGY	☑	7
Thailand	5	THA	☐	7
Costa Rica	4	COZ	☐	14
Costa Rica	2	COZ	☑	7
Indonesia	2	IND	☐	14
Malaysia	5	MAL	☑	14
Thailand	2	THA	☐	14
Sri Lanka	6	SRI	☑	14
Thailand	3	THA	☑	14
Egypt	4	EGY	☑	14
Malaysia	2	MAL	☑	7
Indonesia	2	IND	☐	14
Malaysia	4	MAL	☑	10
Bahamas	4	BAH	☐	7
Costa Rica	4	COZ	☐	14
Thailand	5	THA	☐	14
Sri Lanka	6	SRI	☐	10
Thailand	8	THA	☐	7
Thailand	4	THA	☐	14
Egypt	4	EGY	☐	7
Egypt	2	EGY	☐	14

(a) (i) Describe the steps that need to be followed to set up a dynamic query to allow you to search on the *Group size* and *Code* fields. All fields are to be printed except *Discount*.

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STUDENTS RESOURCE

CamScanner

(ii) You run the query and type in the Group size as 4 and the Code as EGY.

Write down the *Durations* that will be printed out.

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(b) The *Duration* field has only the values shown in the database excerpt. The database needs to be set up to allow you to enter the data in this field without using the keyboard to type in the value each time.

Describe how this would be done and explain how you would now enter the data.

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(c) When the database was initially set up it did not have the *Country* field. Data was exported to a spreadsheet and a formula created, using the *Code* field, to add the names of the countries with the layout exactly as shown in the database excerpt.

Without specifying the formula precisely, explain how this could be achieved.

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STUDENTS RESOURCE

CamScanner

20 9626/12/M/J/18/Q7

A managing director of a company supervises other directors. Each director has three departments they are responsible for. Each department has several workers. The company stores information about all its workers in a hierarchical database.

Explain what is meant by a hierarchical database management system and describe how such a system would be used to store the workers' data.

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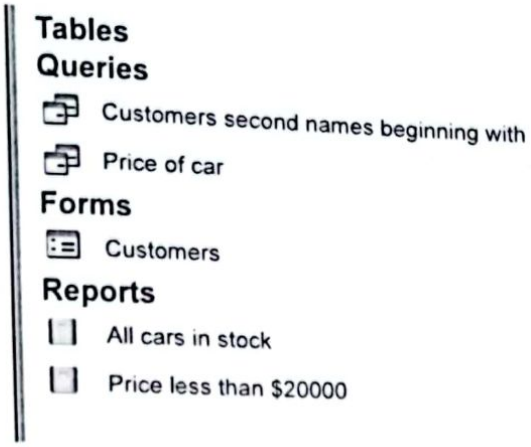
STUDENTS RESOURCE

CamScanner

9626/12/M/J/18/Q10

A car salesroom has a relational database which stores details of the cars and the customers who have purchased a car. The manager uses it to search for information about the cars and the customers. She also produces reports based on these searches.



(a) She wants to have an easier way of accessing the queries, forms and reports.

Design a switchboard for her which will allow her to go to any of the reports, forms or queries already set up as shown in the image above.

[4]

STUDENTS RESOURCE

CamScanner

(b) Referring to any **four** interactive items on your switchboard explain what will happen if they are selected.

Item 1 .....

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Item 2 .....

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Item 3 .....

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Item 4 .....

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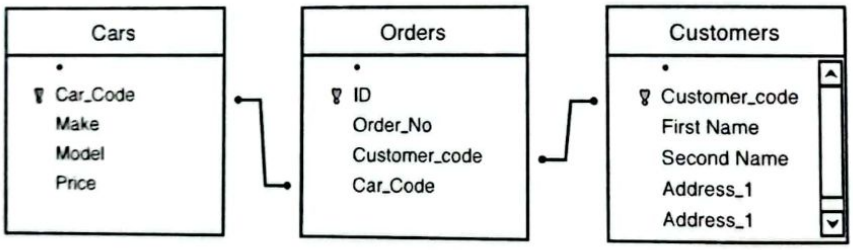
(c) Below is a diagram showing the tables in the database.



The car salesroom manager wanted a list of cars made by Frod as well as, in the same list, any cars ordered by customers whose second name begins with B.
The printout shows the makes and models of cars, first and second customer names who have ordered them and the order number.

Make	Model	First Name	Second Name	Order_No
Frod	Deomon	Alan	Sutton	9
Frod	Deomon	Bruce	Silversmith	8
Frod	Deomon	Johann	Schmidt	5
Frod	Deomon	Brian	Biggins	3
Olap	Azum	George	Babak	10
Yatoya	Yangtse	Kulvir	Bains	

STUDENTS RESOURCE

CamScanner

Describe, in detail, the steps required to set up a query which would display this list.

[8]

STUDENTS RESOURCE

CamScanner

22 9626/13/M/J/18/Q8

Here is a section of a database showing the wages paid and hours worked by some workers in a company.
New data is about to be entered but it will need to be validated. Validation rules will need to be created to make sure the data is sensible. Two validation rules would be appropriate for the **Telephone** field and one for the **Weekly wage** field. You can assume the wages shown include the minimum and maximum that the company pays.

J215VENUES

Family name	First name	Telephone	Weekly wage	Hours worked
Smith	John	01632 267145	220	47
Prudhomme	Pierre	01632 342016	250	51
Gonzales	Jose	01632 941368	260	42
Signusson	Lars	01632 643821	240	40
Thorsvald	Olaf	01632 811276	190	45
Mueller	Dieter	01632 351156	180	48
Lucio	Silvio	01632 281146	210	43
Boko	Peter	01632 444707	260	51
Ndlovu	Joseph	01632 319249	300	41
James	Peter	01632 860787	310	40
Gordon	James	01632 205775	280	40
McDonnell	Jamie	01632 430332	250	45
Kelly	Peter	01632 832287	290	50

Describe, using examples from the data shown, the validation rules that will be created. For each one, give examples of test data (do **not** include normal data) that would test the validation rule works and give reasons for each choice.

(a) Telephone:

(i) Validation rule 1 .....

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(ii) Test data .....

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Reason .....

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(iii) Validation rule 2 .....

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STUDENTS RESOURCE

CamScanner

(iv) Test data .....

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Reason .....

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(b) **Weekly wage:**

(i) Validation rule .....

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(ii) Test data .....

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Reason .....

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(c) Select an appropriate data type for the Telephone field, explaining why you have chosen it.

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STUDENTS RESOURCE

CamScanner

(d) The data from this section of the database has been imported into a spreadsheet. This is because the manager wants to calculate the average wage earned by the workers who work more than 40 hours a week but less than 50 hours a week.

	A	B	C	D	E	F
1	Family name	First name	Telephone	Weekly wage	Hours worked	
2	Smith	John	01632 267145	220	47	
3	Prudhomme	Pierre	01632 342016	250	51	
4	Gonzales	Jose	01632 941368	260	42	
5	Signusson	Lars	01632 643821	240	40	
6	Thorsvald	Olaf	01632 811276	190	45	
7	Mueller	Dieter	01632 351156	180	48	
8	Lucio	Silvio	01632 281146	210	43	
9	Boko	Peter	01632 444707	260	51	
10	Ndlovu	Joseph	01632 319249	300	41	
11	James	Peter	01632 860787	310	40	
12	Gordon	James	01632 205775	280	40	
13	McDonnell	Jamie	01632 430332	250	45	
14	Kelly	Peter	01632 832287	290	50	
15						
16			Average	230		
17						

Write down the formula which should go in cell D16.

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You may use the space below for any working out.

(e) Describe how the spreadsheet could be sorted so that Dieter Mueller is the first worker in the list and Pierre Prudhomme is the seventh.

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STUDENTS RESOURCE

CamScanner

(f) The manager has decided that the name fields should be combined. He wants a name field containing the first name initial and the family name. Write down the formula that would give Jamie McDonnell's name as J McDonnell.

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You may use the space below for any working out.

9626/13/M/J/18/Q9

Some database systems use the indexed sequential method of accessing data.

Describe the features of indexed sequential access and how it is used.

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STUDENTS RESOURCE

CamScanner

9626/11/O/N/18/Q10

Below is a database showing a list of details about cars in a showroom.

Reg_No	Make	Model	Doors	Colour
L456 SRA	BMS	2000	7	Green
B648 MAV	Opla	Valiant	7	Green
M452 DQY	BMS	2000	5	Red
M846 RCA	BMS	3000	5	Blue
L678 RTS	Frod	Vic	5	Red
B358 FCD	Opla	Eagle	5	Green
F692 TEC	Opla	Eagle	5	Red
S492 LZR	Opla	Artsa	5	Black
N671 SAE	Vellox	Lemming	5	Black
R762 VDA	Frod	Leo	4	Blue
F457 REW	Opla	Eagle	4	Blue
K789 KNM	Opla	Artsa	4	Blue
X236 BEC	Opla	Eagle	4	Black
Z341 TYU	Opla	Eagle	4	Green
J456 REA	Vellox	Kestrel	4	Black
L423 FRO	Vellox	Lemming	4	Blue
L567 APQ	Vellox	Kestrel	4	Green

To find all Eagle models the search conditions would be Model = "Eagle".

(a) Using only Boolean operands, comparison operators and wild cards, write down the most efficient search conditions which would produce lists of:

(i) Reg_Nos beginning with the letter 'L'.

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.....[2]

(ii) Frod cars which are Blue.

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(iii) Eagles which are Red, Blue or Green.

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STUDENTS RESOURCE

CamScanner

(b) Describe how the database has been sorted to produce the one shown.

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(c) Identify, giving reasons, the key field in the database. Give reasons why the other fields are not suitable.

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STUDENTS RESOURCE

CamScanner

9626/11/O/N/18/Q11

Normalisation is often used when converting a set of data into a meaningful database.

Discuss the advantages and disadvantages of normalisation.

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STUDENTS RESOURCE

CamScanner

26 **9626/12/O/N/18/Q9**

People who are employed to develop software often refer to the need for a detailed data dictionary.

Describe the components of a typical data dictionary.

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27 **9626/12/O/N/18/Q10**

A company provides cars for several leasing organisations in districts of London, in the UK, such as Enfield or Lewisham.
Agents buy cars from a number of showrooms.
The company buys a car from an agent before then providing it for lease.

The holding company needs to keep a record of:

- each car
- which agent bought each car
- which showroom it came from.

An example of a database for this company in unnormalised (0NF) form is shown below.

Car ID	Make	Model	Agent ID	Showroom	Agent Name	Agent Email
LO01	Lopa	Wolf	001	Jones, Enfield	John Hart	jhart@welovecars.com
FO01	Frod	Squire	002	Morgan, Lewisham	Carl Mason	cmason@amazingcars.com
YA01	Yayota	Badger	003	Jones, Greenwich	Joe Smith	jsmith@mew.com
CN01	CNX	Rabbit	001	Lewis, Ealing	John Hart	jhart@welovecars.com
WX01	WX	Gull	001	Jones, Brent	John Hart	jhart@welovecars.com
YA02	Yayota	Loaf	002	Evans, Lambeth	Carl Mason	cmason@amazingcars.com
FO02	Frod	Peer	003	Evans, Lambeth	Joe Smith	jsmith@mew.com
LO02	Lopa	Fox	001	Jones, Enfield	John Hart	jhart@welovecars.com
YA03	Yayota	Plum	001	Morgan, Lewisham	John Hart	jhart@welovecars.com
CN02	CNX	Chariot	003	Lewis, Ealing	Joe Smith	jsmith@mew.com

STUDENTS RESOURCE

CamScanner

(a) Convert this database to third normalised form by completing the field names for each table provided.
You are **not** required to enter any data into the tables.

Cars

Field1	Field2	Field3	Field4	Field5

Agents

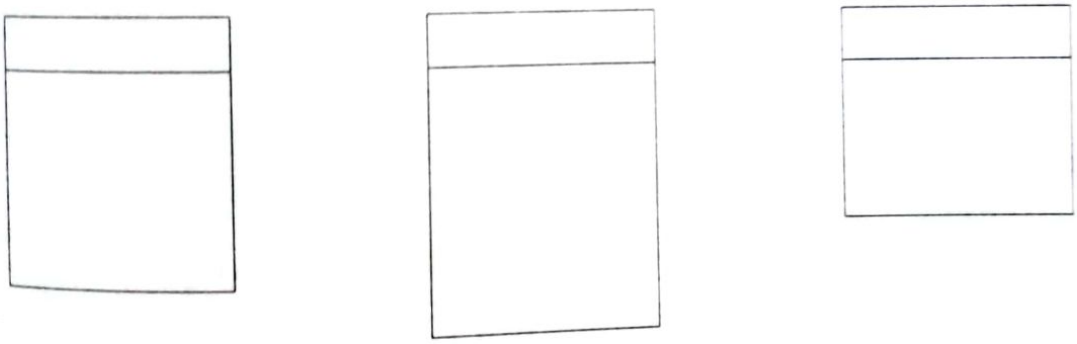
Field1	Field2	Field3	Field4

Showrooms

Field1	Field2	Field3

[10]

(b) Complete the relationship diagram below by completing the tables and showing the **types** of relationships between them.
In the top cell write the name of the table and write the field names underneath.
Indicate the primary key (pk) for each table and any foreign keys (fk).



[8]

STUDENTS RESOURCE

CamScanner

28 9626/12/F/M/19/Q10

Jasvir owns a gardening equipment hire shop. She has developed a simple database system which contains information about the equipment. Each record contains the following data: Equipment_name, Manufacturer, Equipment_code (a six character code), Hire_price, Number_of_days_hired, Date_hired, Customer_number and Loyalty_customer (Y/N).

Design an appropriate online data entry form for **one** item of equipment, clearly indicating the amount of space required for each field. Use the computer screen shown below for your design. Where appropriate allow the user to enter data by clicking the mouse rather than entering text.

[8]

29 9626/11/M/J/19/Q6

Louis has partly typed up the notes from his IT lesson. He wants to complete these at home. Sophia, a fellow student, tells him that it may be difficult as he has been using proprietary software.

Explain what is meant by proprietary and open-source file formats, giving reasons why open-source file formats are needed.

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STUDENTS RESOURCE

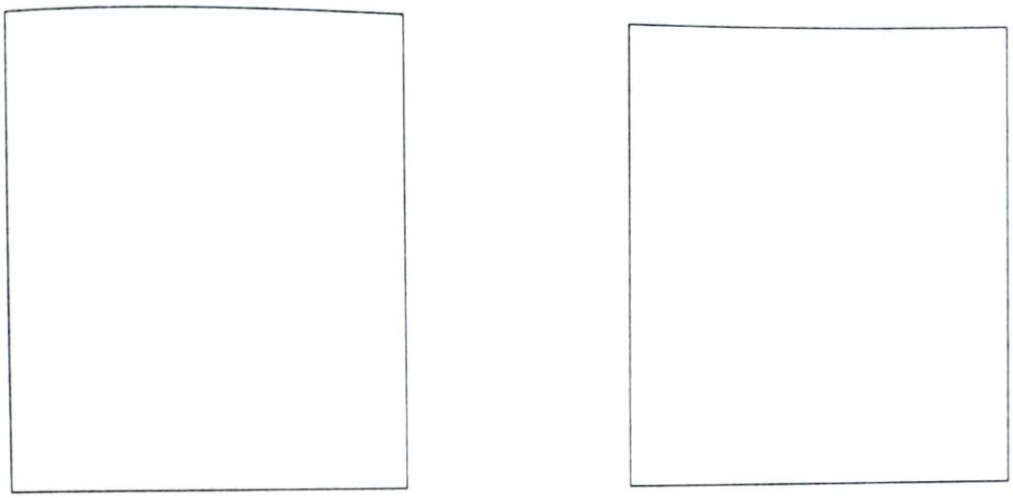
CamScanner

9626/11/M/J/19/Q11

Maria, the A level students' secretary, has been given the task of creating a database. It will store the records of each subject taught and the records of the teachers involved. She has decided to produce a relational database.

The **Teacher** records will have the fields **Teacher_ID**, **Family_name**, **First_name**, **Subject_ID** and **Number_of_classes**. The **Subject** records will have the fields **Subject_code**, **Subject_name**, **Subject_level** and **Number_of_lessons**.

(a) Complete the diagram below to show how the tables will be combined.



[4]

(b) Using the design of your database from part **(a)**, describe how you would create it.

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STUDENTS RESOURCE

CamScanner

31 9626/11/M/J/19/Q12

A government database stores the licence plates of cars. In this particular country they all follow the same pattern, e.g.

BG136KG
CD125FH
FT342LM
NQ439SR

Apart from a presence check, describe **two** appropriate validation checks which could be applied to licence plates. For each check give an appropriate example of invalid data that would be rejected. Each example must be different.

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STUDENTS RESOURCE

CamScanner

9626/12/M/J/19/Q7

Relational databases can have many components and properties.

(a) Describe what is meant by the following terms:

(i) Primary key .....

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(ii) Foreign key .....

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(iii) Compound key .....

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(b) Explain why referential integrity is important in a relational database.

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STUDENTS RESOURCE

CamScanner

33 9626/12/M/J/19/Q11

A library database consists of one table containing details of all the books in a library and another table containing details of all the borrowers. Parts of the tables are shown below.

Books table

ISBN	Title	Author	Publisher	ReplacementCost
0099445530	The Flamboya Tree	Clara Olink Kelly	Bow Books	€7.99
0099460874	I Capture the Castle	Dodie Smith	Archaic	€5.99
0439977797	The Tin Princess	Philip Pullman	Panda Books	€5.99
0553812645	Ten Thousand Sorrows	Elizabeth Kim	Welter Books	€6.99
0684817306	Kitchen Privileges	Mary Higgins Clark	Grimon & Custer	€12.99
1857028899	The Code Book	Simon Singh	Quatre Domaine	€8.99
9780593057063	61 Hours	Lee Child	Crossearth Publishers	€18.99
9780593065709	The Affair	Lee Child	Crossearth Publishers	€18.99
9780593072493	Inferno	Dan Brown	Crossearth Publishers	€20.00
9780752860558	Sepulchre	Kate Mosse	Nebula Books	€18.99
9781780892665	Cross Justice	James Patterson	Panda Books	€20.00
9781846558597	Midnight Sun	Jo Nesbo	Panda Books	€9.99

Borrowers table

ID	FamilyName	FirstName	Mobilephone	Residence
1	Gale	Henry	07700 900102	Midtown
2	Brown	Kurtis	01134 960675	Cheswick
3	Leadbetter	Clementine	01144 960975	Chorlton
4	Hull	Christine	07700 900643	Denby
5	Greenhalgh	Karla	08081 570372	Portlarne
6	Pooley	Fred	09098 790876	Midtown
7	Chalmers	Ben	01154 960987	Denby
8	Lewis	Christopher	07700 900152	Denby
9	Patel	Rio	08081 570976	Chorlton
10	Gopaul	Ruksana	03069 990967	Cheswick

STUDENTS RESOURCE

CamScanner

(a) You have been asked to create a query which will output only the names and phone numbers of all the borrowers who have a family name beginning with G and also live in Midtown.
Describe the steps you would have to follow in order to create this query, without using a query wizard or a parameter query.

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(b) You have been asked to create a query which will output only the titles and authors of all the books published by Panda Books which have a replacement cost of less than €20.

(i) Describe the steps you would have to follow in order to create this query, without using a query wizard or a parameter query.

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(ii) Describe how you would set up the query in **(b)(i)** as a parameter query.

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STUDENTS RESOURCE

CamScanner

(c) Explain why the above tables (on page 14) do not constitute a relational database and what would need to be added to make them so.

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34 9626/12/M/J/19/Q12

Validation is often used to check that data entered into a computer is sensible. A customer orders database contains details of the Customer ID number, the value of the order placed and the date the order was placed. Any new order, when it is entered, needs to be validated.

Using these examples of database fields, analyse the use of the following different validation rules – range check, type check, length check and format check.

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STUDENTS RESOURCE

CamScanner

9626/13/M/J/19/Q8

A car hire company keeps its records in a database consisting of two tables. Parts of these tables are shown below.

Customer Table

CustomerID	FamilyName	FirstName	Phone	Residence
11106	Akula	Angela	01164 960567	Midtown
12481	Onyancha	Udoka	08081 960965	Cheswick
12675	Smith	Wesley	07700 900863	Portlarne
12934	Hall	Lauren	01134 960675	Chorlton
12943	Green	Billy	01164 960001	Midtown
13296	Jones	Trevor	01134 990694	Chorlton
13478	Weston	Wally	07700 900900	Portlarne
13542	Gunn	Jasmine	08081 570945	Cheswick
14632	Wells	Brian	09098 790142	Larrowby
15692	Williams	Ieuan	01164 960836	Midtown
15732	Vercoe	John	09098 980487	Larrowby

Car Table

ID	Make	Model	Engine	Licence	Price	Rental	CustId
1	Olep	Victor	1.8	VSE 648	€19,000	€54	12481
2	Olep	Victor	1.8	VTF 384	€19,000	€54	13478
3	Olep	Fariza	2	BFK 297	€29,000	€63	15692
4	Folkwagon	Cricket	1.4	SB A5526	€15,000	€43	14632
5	Folkwagon	Cricket	1.4	SA V4428	€15,000	€43	13296
6	Folkwagon	Swim	1.2	DD B4978	€11,000	€37	15732
7	Folkwagon	Swim	1.2	DD C8634	€11,000	€37	12934
8	Folkwagon	Piano	1.6	B G8347	€19,000	€49	11106
9	Ranolt	Melanie	1.4	12333 CD 33	€17,000	€41	12943
10	Ranolt	Laine	1.2	6289 XF 54	€11,000	€33	13542
11	Ranolt	Laine	1.2	6301 YU 38	€11,000	€33	12675

STUDENTS RESOURCE

CamScanner

(a) Describe how you would use database features to create a relational database from these two tables.

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(b) The manager is carrying out a survey of cars hired in certain areas. She wishes to know which cars with an engine size under 1.8 litres have been rented by people living in the Chorlton area. She only wishes to know the full names of the customers, their phone number and the make of the car.

Complete the grid below to show how the conditions for such a query would be created.

Field:						
Table:						
Sort:						
Show:	☐	☐	☐	☐	☐	☐
Criteria:						
or:						

[6]

STUDENTS RESOURCE

CamScanner

(c) Explain why it would be extremely difficult to validate the Licence field. Include in your explanation, a detailed description of **three** validation checks, other than a presence check, which could normally be used on any alphanumeric field from the database shown on page 8.

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STUDENTS RESOURCE

CamScanner

36 9626/13/M/J/19/Q11

A business needs to search its database to find all the customers it has in the Chinese city of Beijing.

Analyse when static or dynamic parameters should be used in queries.

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STUDENTS RESOURCE

CamScanner

When creating queries, a function IIf() is often used. A table containing a list of where people live and their status could exist so that a query could be constructed:

IIf([Living_in]="own home","own","other")

This would look in a list of where people lived for the words 'own home' and would output the word 'own' if a match were found. If it was not 'own home' then the word 'other' is output.

(a) Complete the nested query that would be used to output 'rented' for anyone living in accommodation owned by a landlord. This is indicated by the word 'landlord' in the *Living_in* field (see table on page 5).

IIf([Living_in]="own home","own" .....

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You can use the space below for any working you need.

(b) Below is shown the output created from a larger database.

Describe the steps required to produce this output (from the query in part **(a)**), without using a wizard.

Second_Name	Name1	Living_in	Status
Burke	Dougie	own home	own
Charles	David	with parents	other
Hoy	Tony	landlord	rented
Lee	Duncan	own home	own
Macdonald	Lotte	with friends	other
Norfolk	Jeannie	landlord	rented
Reid	Laura	own home	own
Rydell	Jenna	own home	own
Ryder	Joe	with parents	other
Thomson	Jimmy	landlord	rented

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STUDENTS RESOURCE

CamScanner

38 9626/11/O/N/19/Q8

Roger has decided to set up a mail order company. He needs to create a database of customer records and orders. He is not sure whether to create a flat file database or a relational database.

Explain the differences between a flat file database and a relational database.

[8]

STUDENTS RESOURCE

CamScanner

The principal of a college wishes to keep records of all his students' details including exam scores. He is not sure whether he should use a spreadsheet or a database to do this.

Evaluate the use of databases and spreadsheets for such a task.

[8]

STUDENTS RESOURCE

40 **9626/12/O/N/19/Q8**

Kelvin was given the task of creating a relational database to combine all his company's customer records and sales records (invoices). The tables that were created are shown here.

Customer table

Customer_Id	Family_name	First_name	Credit_limit	Loyalty_number
M3764A	Burke	Linda	€1,980	408254117150
N3201B	Charles	Lauren	€2,650	545687952356
N5789A	Floyd	Joe	€1,850	803226234709
L2345A	Hall	John	€2,700	678914325678
Q4012A	Jones	Laura	€3,400	384466646362
L3896C	Li	Kurtis	€2,130	846869163975
M4698B	Norfolk	Kate	€1,250	243375720844
M2589D	Rhodes	Lotte	€3,400	385657814001
M4013B	Sun Wu	Li	€2,240	320031330576
P4352D	Watson	Karla	€2,130	322036694448
P3156C	Williams	Joanne	€1,870	421536345681

Invoices table

Invoice_number	Number_of_items	Item_cost	Customer_ref	Delivered
32178	8	€12.45	P4352D	☑
43189	6	€17.30	N5789A	☑
45237	4	€38.50	M4698B	☐
45964	1	€152.20	L3896C	☑
46579	3	€38.20	N3201B	☐
56931	5	€17.50	M2589D	☑

You can assume that all values shown include the maximum and minimum allowed in each field.

(a) Complete the data dictionary below for the Invoices table. You can assume that all values shown are typical. All field sizes should be appropriate.

Attribute	Data type	Field size	Format	Type of key

[6]

STUDENTS RESOURCE

CamScanner

(b) Kelvin wishes to add a calculated field showing the total cost for each customer.

Describe the steps he would need to follow in order to create this calculated field using a query without using a wizard.

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(c) The following data was typed in error. For each item explain how validation could have prevented the error and explain what would be allowed.

(i) 321789 in the Invoice_number field.

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STUDENTS RESOURCE

CamScanner

(ii) 12500 in the Credit_limit field.

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(iii) L21789 in the Customer_id field.

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(iv) 679814325678 in the Loyalty_number field for John Hall.

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STUDENTS RESOURCE

CamScanner

9626/12/O/N/19/Q9

Evaluate the use of HTTPS in websites.

[4]

STUDENTS RESOURCE

CamScanner

42 9626/12/O/N/19/Q10

Many organisations make use of Management Information Systems (MIS). Explain what a typical MIS consists of, including the role of an MIS manager.

[5]

43 9626/12/F/M/20/Q11

Explain why generic file formats are needed when using word processing software and spreadsheet software.

[4]

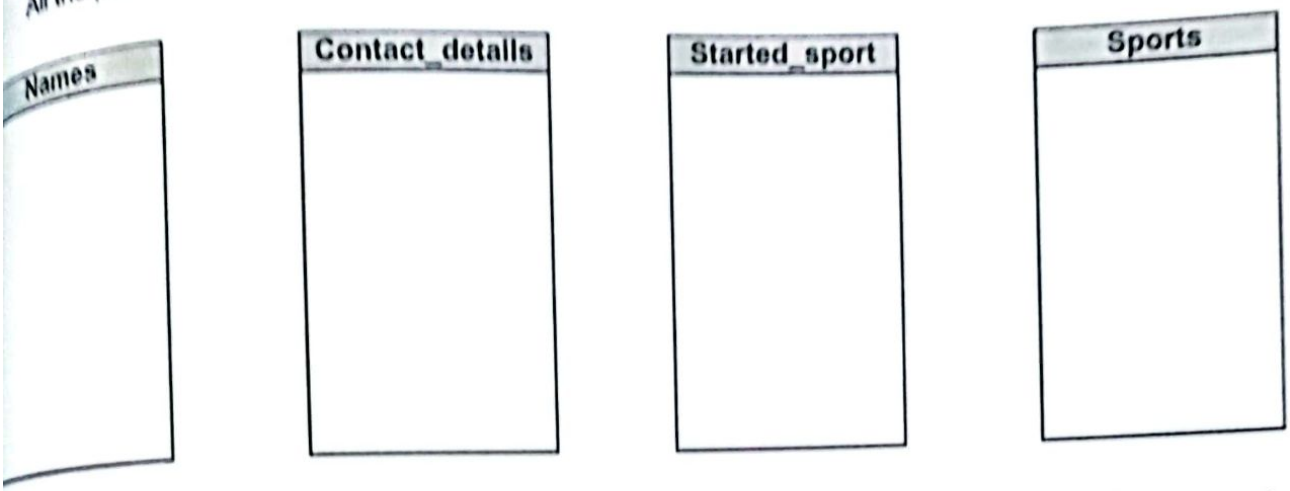
STUDENTS RESOURCE

CamScanner

9626/12/M/J/20/Q5

A sports club keeps records in a database of its members and the individual sports they play. It has the following tables of data:

Members' names
Members' contact details
Details of when they started playing the sport
All the possible sports which can be played by the members.



(a) Complete the tables shown above, writing down examples of the **field names** for **three** of the fields in each table. Indicate the key fields in each table and the relationships that exist between each adjacent table. Indicate the type of each relationship. Some tables have one relationship and others have a maximum of two relationships. [8]

(b) Two of the tables could possibly be regarded as having a many-to-many relationship. Using the example of the tables shown above, explain what is meant by a many-to-many relationship.

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45 9626/11/M/J/20/Q6

Many companies use batch processing for producing workers' payslips.

(a) Describe, using payroll as an example, what is meant by batch processing.

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(b) Explain why batch processing is used instead of real-time processing for an application such as payroll.

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STUDENTS RESOURCE

CamScanner

Designers of user interfaces tend to base their designs on what they interpret to be a user's mental model.

Evaluate, by weighing up the advantages and disadvantages, the use of a mental model to design a user interface.

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STUDENTS RESOURCE

CamScanner

47 9626/12/M/J/20/Q7

Here is part of a database showing the earnings of a group of workers in a company.

WorkerID	Job_type	Hours_worked	Hourly_rate	Weekly_pay
56321	Tyre changer	42	€17.00	€714.00
58191	Foreman	40	€22.00	€880.00
58694	Mechanic	38	€20.00	€760.00
59676	Painter	37	€18.00	€666.00
61230	Sander	39	€15.00	€585.00
63214	Sander	36	€15.00	€540.00
63295	Polisher	38	€14.00	€532.00
64387	Polisher	40	€14.00	€560.00
67152	Mechanic	37	€20.00	€740.00
67328	Painter	36	€18.00	€648.00
68947	Painter	38	€18.00	€684.00

(a) Describe, using an example from the database, the features of a calculated field.

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(b) A number of fields in the database are not shown. Examples of these are first name and family name. In this database the WorkerID is a primary key.

Explain why it is good practice to have a primary key in this database.

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STUDENTS RESOURCE

CamScanner

(c) Describe what a consistency validation check is and explain how it could be used in this database as a check when inputting data.

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9626/12/M/J/20/Q10

Ayesha is searching a school database for all the students studying biology. She has used a static parameter query but has been advised to set the query up as a dynamic parameter query.

Describe what is meant by a dynamic parameter query and give the advantages of using one instead of a static parameter query.

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STUDENTS RESOURCE

CamScanner

49 9626/13/M/J/20/Q3

BNMA, a large banking organisation, uses management information system (MIS) software in its day to day business concerns.

Without referring to what MIS consists of, or to the specific role of the MIS manager, explain how BNMA could use this MIS software.

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STUDENTS RESOURCE

CamScanner

9626/13/M/J/20/Q6

Joanne owns a store which sells films as DVD and blu-ray discs. Each disc has a six-character code number and each customer has an eight-character customer number. She has developed a database system which contains information about the films. Each record contains the following data:

Film title, director, code_number, DVD (Y/N), date_of_sale, customer_number.

Describe the features of an appropriate online data entry form for one film which would, where appropriate, allow the user to enter data by clicking the mouse rather than entering text.

Do **not** draw the screen and data entry form in your description.

[8]

STUDENTS RESOURCE

CamScanner

51 9626/13/M/J/20/Q11

Describe what is meant by normalisation. Include in your description the properties of first normal form (1NF) and how a table in first normal form can be converted to second normal form (2NF).

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52 9626/13/M/J/20/Q12

Sujatmi runs a company which stores its payroll records and personal details of its workers in two flat files. She has been told that these files should be converted into a relational database.

By weighing up the advantages and disadvantages, evaluate the differences between a flat file database and a relational database which would help Sujatmi make her decision as to which to use.

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STUDENTS RESOURCE

CamScanner

9626/12/F/M/20/Q11

Explain why generic file formats are needed when using word processing software and spreadsheet software.

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STUDENTS RESOURCE

CamScanner

54 9626/11/O/N/20/Q10

Below are tables from a university database of Metallurgy students. Relationships link the tables.

Students

Studentid	Phone	Second_name
A5384	01217421600	Bhatti
A6528	01213689624	Schmidt
B7238	01214016620	Jones
A8946	01214006451	Gonzales
D9476	01214016620	Jones

Courses

Studentid	Subject	Teacher_code
A5384	Geology of metals	SMI
A6528	Electrochemical Metallurgy	LOU
B7238	Geology of metals	RIC
A6528	Metallography	SAN
D9476	Physical Metallurgy	SAN

Teachers

Teacher_code	Subject 1	Subject 2
LOU	Electrochemical Metallurgy	Metallography
RIC	Geology of metals	Crystallography
SAN	Metallography	Physical Metallurgy
SMI	Electrochemical Metallurgy	Geology of metals
TUR	Crystallography	Geology of metals

(a) Define, exactly, each of the following terms giving examples of the only suitable fields for each, using the tables provided.

(i) Primary key

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STUDENTS RESOURCE

CamScanner

(ii) Foreign key

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(iii) Compound key

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STUDENTS RESOURCE

CamScanner

(b) Explain, indicating the type of relationship formed, how the relationships were created connecting these tables. You can assume the tables were already populated with data.

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(c) Describe, in detail, the two validation checks that could be carried out on the Studentid field which could **not** be carried out on the Second_name field.

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STUDENTS RESOURCE

CamScanner

Amir has created a student database query which allows users to type in any name they choose and then the query finds everybody in the database with that name.

Annisa has told him that this is a dynamic parameter query.

Evaluate, by weighing up the advantages and disadvantages, dynamic parameter queries compared with static parameter queries.

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STUDENTS RESOURCE

CamScanner

56 9626/12/O/N/20/Q4

A secretary has been asked to add the data of three new employees to his company's database of employee records.

These include payroll numbers and the date these employees joined the company:

J45786	28/10/2019
K68932	11/11/2019
M40932	30/12/2019

Analyse the effectiveness of limit checks on the upper limits and format checks in validating this data.

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STUDENTS RESOURCE

CamScanner

9626/12/O/N/20/Q8

Select the most appropriate data type for each of the following examples, giving a reason why alternative data types would not be suitable. If the data type is numeric, specify the type of numeric data that would be most appropriate and give a reason. The reasons must be different for each example.

(a) A phone number, such as 028 9649 6437

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(b) A number used to show the fraction of students who like IT, such as 0.125.

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(c) The number of children in a family, such as 4.

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(d) A person's state of employment, such as employed or not employed.

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(e) The amount of money a person earns, such as $100.50.

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STUDENTS RESOURCE

CamScanner

58 9626/12/O/N/20/Q9

Many factors, including the accuracy of collected data, affect the quality of information.

Describe how the method of collecting data may affect the accuracy of the data.

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59 9626/12/O/N/20/Q10

There are several different generic file formats which can be used to save data.

Evaluate, by weighing up the advantages and disadvantages, the use of txt format to save data.

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STUDENTS RESOURCE

CamScanner

9626/12/O/N/20/Q11

Many companies use management information systems (MIS).

Without describing the role of the MIS manager, describe how other managers within a company would use MIS.

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9626/12/F/M/21/Q4

A sports club secretary has entered data from a source document into a database on his own computer. The original document contains correct data but he made some errors when copying the data into the database. Membership number is text data type and Membership fee paid is currency.

Membership number	Date of birth	Membership fee paid ($)
45237	13/04/1996	35
34859	09/12/1998	46
28695	12/11/1992	43
61892	01/02/2001	12
56123	27/06/1999	15

Source document

Membership number	Date of birth	Membership fee paid ($)
45237	13/04/1996	35
3485	09/12/1998	46
28695	12/12/1992	43
61892	01/02/2001	12
56123	27/06/1999	5

Database

The **three** errors were:

15 has been copied as 5
34859 has been copied as 3485
12/11/1992 has been copied as 12/12/1992

STUDENTS RESOURCE

CamScanner

(a) (i) Explain, in detail, why one of the errors could **only** have been detected using verification.

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(ii) Describe the most appropriate method of verification that could be used to trap this error.

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(b) For each of the other **two** errors, describe the most appropriate validation check which would have trapped the error.

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[2]

62 **9626/12/F/M/21/Q8**

Explain how the reporting feature of a management information system (MIS) helps an organisation in the running of its business.

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STUDENTS RESOURCE

CamScanner

9626/12/F/M/21/Q11

When creating queries in a database, a function IIf() is often used. IIf is equivalent to the IF function found in spreadsheet software.

Examine the following database query.

IIf([Examdate]>Date(),"not yet",IIf([Examdate]=Date(),"today's the day","you've missed it"))

Date() returns the current date. [Examdate] is written as "Examdate" in some software.

Describe, in detail, what the database query does.

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9626/12/F/M/21/Q13

A company stores records of its employees in alphabetical order of name.

Explain what is meant by the indexed sequential access method, describing how it could be used to retrieve the records of employees named Patel.

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STUDENTS RESOURCE

CamScanner

65 9626/11/M/J/21/Q9

Metropolis City Library stores details of its books and borrowers in a database. Part of the Borrowers table is shown in Fig. 9.1.

BorrowerID	FamilyName	FirstName	Phone	Town_lived_in
1	Gale	Clemantine	01164960567	Mintair
2	Brown	Christine	01134960965	Redleigh
3	Leadbetter	Karla	07700900863	Lowtown
4	Brierley	Fred	01134960675	Redleigh
5	Greenhalgh	Ben	01164960001	Mintair
6	Pooley	Christopher	03069990694	Armley
7	Chalmers	Rio	07700900900	Fromman
8	Lewis	Ruksana	08081570945	Lowtown
9	Patel	Angela	09098790142	Fromman
10	Bopal	Udoka	01614960836	Lowtown
11	Akula	Billy	01914980487	Armley
12	Benson	Wesley	01845632545	Lowtown
13	Breen	Wally	01915647379	Armley

Fig. 9.1

The librarian has created the following query:

Field:	BorrowerID	FamilyName	FirstName	Phone	Town_lived_in
Table:	Borrowers	Borrowers	Borrowers	Borrowers	Borrowers
Sort:					
Show:	☐	☑	☑	☐	☑
Criteria:		Like "B*"			<>"Lowtown"
or:					

Fig. 9.2

(a) (i) Explain what information the librarian is looking for when using the query in Fig. 9.2.

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STUDENTS RESOURCE

CamScanner

(ii) Identify the information that the query would output using the data in Fig. 9.1.

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Part of the Books table is shown in Fig. 9.3.

ISBN	Title	Author	Publisher	NumberofCopies	Replacement Cost
9780577185273	Ruinous Orange	Jonathon Roberts	Ellipsoid	3	$16.99
9780593039427	That Was Then	Jaswant Sandhu	Round Moon Publishers	4	$10.00
9780593065907	The Cheap Strangers	Reeta Khan	Round Moon Publishers	1	$18.99
9780752856006	Too Open Too Short	Paul Stevenson	Douglas Books	2	$16.99
9781356892467	The Divide of Decay	Donal Haroldson	Travellor Books	2	$19.99
9781409187276	Light and Day	Gabrial Aston	Betelgeuse	2	$18.99
9781544196873	Never the Poor	Jaswant Sandhu	Round Moon Publishers	3	$18.99
9781772460886	Gloom Brother	Rowena Littleton	Douglas Books	1	$20.99
9781772469285	Tempest Brother	Rowena Littleton	Douglas Books	1	$13.99
9781780835991	Ambuscade	Hortense de Vandre	Possum Books	2	$12.99
9781781254293	Significant Numbers	Jan Tudor	Frowpile Books	4	$17.99
9781846962345	Respeto por la Castilla	Celia Rodriguez	Possum Books	4	$9.99

Fig. 9.3

The librarian has created the following query:

Field:	ISBN	Title	Author	Publisher	NumberofCopies	ReplacementCost
Table:	Books	Books	Books	Books	Books	Books
Sort:						
Show:	☐	☑	☑	☐	☑	☐
Criteria:			Like "*son"			
or:						<10

Fig. 9.4

(b) (i) Explain what information the librarian is looking for when using the query in Fig. 9.4.

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(ii) Identify the information that the query would output using the data in Fig. 9.3.

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..... [1]

STUDENTS RESOURCE

CamScanner

66 **9626/11/M/J/21/Q10**

A company is creating a database to record information about each employee. The IT manager is creating an on-screen data entry form that will be used by the Human Resources department. This is her first design:

Name___

Address_____

Date of birth_____

Gender_____

Date joined company_____

Salary_____

Describe, in detail, appropriate improvements that could be made to the form to make data entry more accurate and easier to complete.

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STUDENTS RESOURCE

CamScanner

[8]

7 9626/11/M/J/21/Q11

Explain, using examples, what is meant by the term generic file format.

[3]

STUDENTS RESOURCE

CamScanner

68 9626/11/M/J/21/Q12

Describe, in detail, what is meant by a hierarchical database management system.

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69 9626/12/M/J/21/Q8

A common feature of many database systems is the use of switchboards.

Evaluate, by weighing up the advantages and disadvantages, the use of switchboards in such systems.

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STUDENTS RESOURCE

CamScanner

9626/12/M/J/21/Q12

Joanne has created a spreadsheet using proprietary software. Paula has suggested that she should save it in an open-source file format.

(a) Describe **three** distinct features of proprietary software.

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(b) Describe **two** distinct features of an open-source file format.

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9626/13/M/J/21/Q11

Explain what is meant by normalisation. Include in your answer a description of the characteristics of second normal form (2NF) and third normal form (3NF).

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STUDENTS RESOURCE

CamScanner

72 9626/13/M/J/21/Q12

A management information system (MIS) can be used to produce reports.

Describe other features of a management information system (MIS).

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..... [5]

73 9626/11/O/N/21/Q11

Normalisation is often used to refine the structure of a relational database.

Describe **four** advantages of using normalisation.

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STUDENTS RESOURCE

CamScanner

9626/11/O/N/21/Q13

Here is an extract from a table which is part of a relational database. It requires the use of a compound key.

Studentid	Second_name	Coursecode
L03127	Gimenez	MAT
L03218	Driscoll	CHE
L03313	De Silva	PHY
L03214	Alicante	BIO
L03127	Gimenez	CHE

Analyse, including its effectiveness, the function of a compound key. Refer to the extract in your answer.

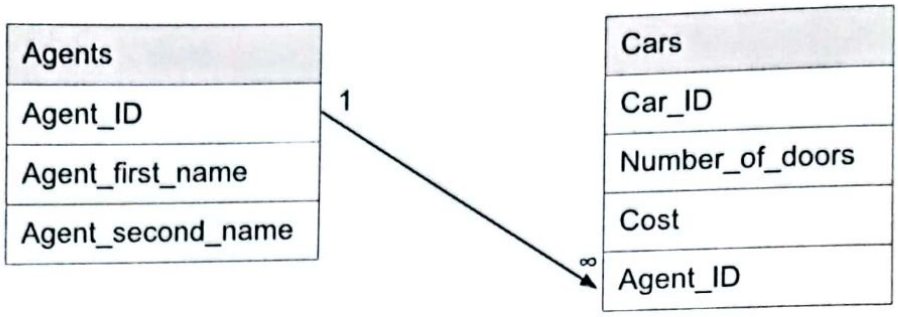
..... [6]

STUDENTS RESOURCE

CamScanner

75 9626/12/O/N/21/Q11

The sales director of a large company buys cars from an agent before issuing them to managers for use as company cars. She needs to keep records of all the agents she deals with and the details of each car. The records are stored as a relational database consisting of two tables.



A typical record from the Cars table would be: S8562T, 5, $39500, B345

(a) Using the information given above, complete this part of the data dictionary for the **Cars** table.

Attribute	Data type	Format	Type of key
Car_ID			

[5]

STUDENTS RESOURCE

CamScanner

(b) Evaluate, by weighing up the advantages and disadvantages, the use of a relational database rather than a flat file database in this situation.

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(c) The sales director wishes to find the details of the agent who sold her the car with an ID of R4962Z. She has used a static parameter query to find these details.

Explain why she should have used a dynamic parameter query.

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STUDENTS RESOURCE

CamScanner

76 9626/13/O/N/21/Q7

All the exams taken in a school are marked out of 80. The school has introduced a system of marking where students are awarded 5 marks for just sitting the exam and then, as normal, are awarded further marks for correct answers.

The marks are stored in a spreadsheet and validated using a range check.

Describe, giving examples, **three** types of test data that could be used to test the range check. For each type of data, describe an improvement that might be necessary as a result of the testing.

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STUDENTS RESOURCE

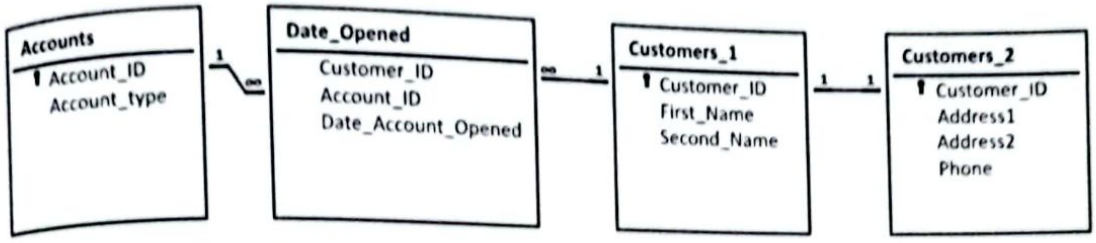
CamScanner

9626/13/O/N/21/Q10

A bank keeps the following information about its customers and accounts in a database:

- all the types of account customers can open
- details of when customer accounts are opened
- the names of each customer
- customers' contact details.

Tables in the database are linked as shown:



(a) Describe, in detail, how the tables are connected and the possible relationships that exist within the database.

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STUDENTS RESOURCE

CamScanner

(b) The tables were created with the field names shown. The field names were assigned correctly and then data was entered.

The software rejected the relationships as they were being set up.

Describe **two** reasons the software would have rejected the relationships.

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..... [2]

78 9626/13/O/N/21/Q12

Describe what is meant by the following types of database query:

(a) Complex

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(b) Nested

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..... [2]

(c) Summary.

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STUDENTS RESOURCE

CamScanner

(a) Define the following database terms.

(i) One-to-one relationship

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(ii) One-to-many relationship

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(iii) Compound key

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(b) Explain how a many-to-many relationship can be created in a database.

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STUDENTS RESOURCE

CamScanner

80 9626/11/M/J/22/Q4

A supermarket uses a computer to automatically update stock levels. Each record in the **Product file** contains the fields shown.

Product file

Bar_code	Product	Number_in_stock	Reorder_level	Reorder_quantity	Supplier_ID
5022476130067	Oaters	131	130	250	B671841
0100108097858	Tea	182	130	310	A296593
0201570244453	Beans	317	212	450	C562148

When the Number_in_stock of a product item falls to the Reorder_level, that product must be reordered. The Reorder_quantity is the number of items of the product that must be reordered.

The **Supplier file** contains the contact details of all the suppliers.

Supplier file

Supplier_ID	Supplier	Contact
B671841	J Sullivan	js@cmail.co.ke
A296593	Bluants	bluants@hmail.ug
C562148	Golan	golan@smail.eg

Only some of the records in the Product and Supplier files are shown.

STUDENTS RESOURCE

CamScanner

Describe, using the Oaters record as an example, the steps the computer would follow to update the Product file after a point of sale terminal reads the bar code for a packet of Oaters.

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STUDENTS RESOURCE

CamScanner

81 9626/13/M/J/22/Q10

Normalisation is used when designing relational databases.

Discuss the advantages and disadvantages of normalisation.

[8]

STUDENTS RESOURCE

CamScanner

9626/01/SP/22/Q8

Describe the main features of the following key fields.

(a) Primary key

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..... [2]

(b) Foreign key

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STUDENTS RESOURCE

CamScanner